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APPLICATION NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO.
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08/541,191 10/11/95 KAYYEM

J A-62629/RFT

HM12/0310

EXAMINER

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ART UNIT PAPER NUMBER

1616 26

DATE MAILED: 03/10/00

This is a communication from the examiner in charge of your application.  
COMMISSIONER OF PATENTS AND TRADEMARKS

**OFFICE ACTION SUMMARY**

Responsive to communication(s) filed on 8/10/90

This action is **FINAL**.

Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 D.C. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

**Disposition of Claims**

Claim(s) 1-22 is/are pending in the application.

Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

Claim(s) \_\_\_\_\_ is/are allowed.

Claim(s) 1-22 is/are rejected.

Claim(s) \_\_\_\_\_ is/are objected to.

Claims \_\_\_\_\_ are subject to restriction or election requirement.

**Application Papers**

See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

The proposed drawing correction, filed on \_\_\_\_\_ is  approved  disapproved.

The specification is objected to by the Examiner.

The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. § 119**

Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

All  Some\*  None of the CERTIFIED copies of the priority documents have been received.

received in Application No. (Series Code/Serial Number) \_\_\_\_\_

received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

**Attachment(s)**

Notice of Reference Cited, PTO-892

Information Disclosure Statement(s), PTO-1449, Paper No(s) \_\_\_\_\_

Interview Summary, PTO-413

Notice of Draftsperson's Patent Drawing Review, PTO-948

Notice of Informal Patent Application, PTO-152

**- SEE OFFICE ACTION ON THE FOLLOWING PAGES -**

Art Unit: 1616

## **RESPONSE TO APPLICANT'S ARGUMENTS**

1. The Applicant's arguments filed 8/10/99 (Paper No. 22) to the rejection of claims 1-22 made by the Examiner under 35 U.S.C. 103 and double patenting have fully considered and deemed non-persuasive. Therefore, all outstanding rejections are **MAINTAINED** for the reasons set forth below:

### **Statutory Double Patenting**

2. The statutory type (35 U.S.C. 101) double patenting rejection of claims 1-4, 6-10, 12-13, 16, and 22 over claims 1-8, 12, and 21-23 of copending Serial No. 08/321,552 is **MAINTAINED** for the reasons set forth in the Office Action mailed 7/7/97, Paper No. 9.

### **Obviousness-type Double Patenting**

3. The obviousness-type double patenting rejection of claims 5, 11, 14-15, and 17-21 over claims 9-11, 24-27, and 35-38 of copending Serial No. 08/321,552 is **MAINTAINED** for the reasons set forth in the Office Action mailed 7/7/97, Paper No. 9.

### **103 Rejection**

4. The **rejection** of claims 1-22 under 35 U.S.C. 103(a) as being unpatentable over Wu et al (J. Biol. Chem., Vol. 266, No. 22, pp. 14338-14342, August 5, 1991) in view of Kornguth et al (US Patent No. 5,230,883) is **MAINTAINED** in the Office Action mailed 9/11/98, Paper No. 16, and those disclosed below.

Art Unit: 1616

A. Applicant asserts that Wu does not suggest using a metal or radioisotope and that Kornguth does not teach or suggest using a targeting moiety because Kornguth relies on electrostatic interactions to provide selective binding to tumor.

Wu et al was cited in view of Kornguth et al. As stated in the Office Action mailed 5/11/99, Paper No. 20, Wu et al is not relied upon as teaching the inclusion of an MRI agent, but the concept of targeting an agent of interest to a cell. Thus, Wu et al indicates that one of ordinary skill in the art recognizes that the use of multiple polymers of DNA and polylysine linked to a specific binding agent may be used to deliver DNA to a specific target cell. Hence, Wu et al set the precedent for the use of polylysine, a positive charged agent, coupled to a cell specific binding agent. Therefore, the secondary reference, Kornguth et al is relied upon for its teachings of coupling polylysine to a linking group and imaging agent or chemotherapeutic agent. For example, in column 3, lines 3-13 of Kornguth et al, it is disclosed that imaging and chemotherapeutic agents such as metal ions that are paramagnetic, positron emitters, gamma emitter, or beta emitters are added to the polylysine-DTPA complex. Hence, since Wu et al set the precedent for the use of polylysine coupled to a cell specific binding agent, a skilled practitioner would be motivated to modify the invention of Wu to incorporate the use of a metal or radioisotope.

B. Applicant asserts that the combination of references renders the prior art unsatisfactory for its intended use and changes its principal of operation.

Art Unit: 1616

The combination of the references is based upon the critical teachings of Kornguth et al in the context of Wu et al wherein each element of Applicant's invention with the exception of an imaging agent is disclosed. However, since it is recognized in the art that polylysine is useful as a carrier molecule of components of interest including cell targeting molecules and contrast agents, one would be motivated to use polylysine conjugates to deliver nucleic acids as set forth in Applicant's claims 2-3 and 8 for delivery of imaging agents.

While Applicant is asserting that the addition of a nucleic acid would substantially decrease or eliminate the net positive charge of the Kornguth et al compositions selectivity for tumor cells, without evidence of record (i.e., data or a declaration) the modification of the Wu et al compositions using the teachings of Kornguth et al would render Applicant's invention obvious.

C. Applicant asserts that motivation to practice the claimed invention must be found in the prior art rather than Applicant's disclosure.

Applicant's disclosure was referred to in the Office Action mailed 5/11/99, Paper No. 20, to show that the teachings of Kornguth et al is consistent with that disclosed in Applicant's specification because Applicant was asserting that Kornguth et al teaches away from the instant invention. Thus, from examining Applicant disclosure, it was concluded that based on the disclosure of the instant invention and the teachings of Kornguth et al, it is unclear how the prior art teaches away from the instant invention by the addition of a nucleic acid to polylysine since such teachings would contradict what is claimed and disclosed in Applicant's specification.

Art Unit: 1616

## COMMENTS/NOTES

5. In Applicant's response filed 3/15/99, Paper No. 19, Applicant asserted that the complexes of the invention show a surprising and unexpected benefit over the complexes of the prior art when the Kayyem et al (Current Bio., 2:615-620 (1995)) document and in particular Figure 3 are reviewed.

In response, the Examiner stated that Applicant has shown unexpected result when DNA/Tf/Gd-DTPA/PL is utilized (see Figures 2 and 3 of the instant invention). However, the data does not read on any possible four-component system, especially since the number of possible first polymeric molecule, second polymeric molecule, cell targeting moiety, and contrast agent combinations as claimed is unlimited. Furthermore, it was suggested that *if Applicant limits the invention to the embodiment for which unexpected results are shown, then, the claims would be allowable* (Applicant would also have to respond to the statutory and obviousness-type double patenting rejections).

6. Papers related to this application may be submitted to Group 1600 by facsimile transmission. Papers should be faxed to the Group 1600 fax machine at (703) 308-4556. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30; November 15, 1989.

Art Unit: 1616

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to D. L. Jones whose telephone number is (703) 308-4640. Examiner Jones can generally be reached from Monday through Friday between 7:00 a.m. and 3:30 p.m. If the Examiner cannot be reached, questions may be addressed to her supervisor, Jose Dees, whose phone number is (703) 308-4628.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-1235.



D. L. Jones  
Patent Examiner  
Art Unit, 1616

March 7, 2000